

Verizon VA Non-Recurring Cost Panel Surrebuttal Testimony

1 **Q.** How do you respond to AT&T/WorldCom’s contention that Verizon VA’s work
2 time estimates are not forward-looking because Verizon asked respondents to
3 estimate “the actual time it *does* take to perform the activity in its entirety, not the
4 time that it *should* take,” and because “there are many workgroups and entire non-
5 recurring charges for which Verizon made no forward-looking adjustments at all”?
6 **[AT&T/WorldCom NRC Rebuttal Panel at 77.]**

7 **A.** This criticism is a red herring. Verizon VA’s NRCM *does* derive the amount of time that
8 an activity is expected to take on a forward-looking basis — by applying the Forward-
9 Looking Adjustment Factor to the work time estimates received in response to Verizon’s
10 surveys. This is the most accurate means of ascertaining the actual expected work time in
11 a forward-looking environment. AT&T/WorldCom’s counter-proposal is meritless,
12 because while the surveyed workers who perform a task on a day-to-day basis are the
13 most likely to know how long an activity takes today, they are not necessarily in any
14 position to know how long it “should” take in the future. This is because these workers,
15 unsurprisingly, are not the same people who are responsible for planning future
16 mechanizations and for assessing the impact that such automation will likely have on the
17 necessity of manual intervention. Thus, Verizon VA’s model — unlike the
18 AT&T/WorldCom proposal — makes use of each person’s expertise: workers who
19 perform a task on a regular basis have primary responsibility for estimating the amount of
20 time that task takes, while those responsible for planning future automation are
21 responsible for developing the Forward-Looking Adjustment Factor that will account for
22 the reduction in baseline work times as a result of this mechanization.

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1 AT&T/WorldCom's claim that "many" activities and charges exhibit *no* forward-
2 looking adjustment is baseless. In fact, Verizon VA assumes that about 89% of all
3 connect tasks, and 69% of all disconnect tasks, will be *completely* automated — that is,
4 these tasks carry a 0% Forward-Looking Adjustment Factor. In contrast, tasks that will
5 not be automated any further than they are today (thereby carrying a 100% Forward-
6 Looking Adjustment Factor) comprise only about 19% of the connect activities and about
7 6% of the disconnect activities. In other words, contrary to AT&T/WorldCom's
8 suggestion, Verizon VA's model actually assumes that the great majority of tasks
9 performed today will become entirely unnecessary in the forward-looking environment.

11 The fact that a small number of activities are not expected to benefit substantially
12 from mechanization in the foreseeable future is not surprising. There are simply some
13 areas where Verizon VA does not expect future improvements to expedite or facilitate its
14 activities. In such cases, application of a Forward-Looking Adjustment Factor other than
15 100% would not be appropriate. Moreover, there is no reason to be surprised that some
16 non-recurring activities are not expected to benefit from foreseeable mechanization.
17 Most non-recurring costs relate to activities that require human involvement. For the
18 reasons described below, it is, and will continue to be, the case that it is more efficient for
19 these activities to be performed manually than for Verizon VA to develop automated
20 processes that will, in the end, be more expensive than the intervention such processes are
21 designed to circumvent. And whereas technology might be expected to streamline
22 significantly an activity that is performed by an automated system, technology tends to
23 have a less dramatic effect on activity that must continue to be performed by human

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1 beings. This is particularly true for the manual engineering-related activities captured in
2 the non-recurring cost studies. These are not expected to be mechanized in the
3 foreseeable future, and most of the work done by the CO Frame and Field Installation
4 personnel will continue to be performed manually.

5
6 **Q. AT&T/WorldCom claim that Verizon VA's response to AT&T/WCOM 6-21**
7 **provided eleven individual responses containing work times for RCCC task 1, while**
8 **in response to AT&T/WCOM 6-31, Verizon VA claims it received 138 survey**
9 **responses. What is the source of this alleged discrepancy? [AT&T/WorldCom**
10 **NRC Rebuttal Panel at 75.]**

11 A. AT&T/WorldCom have misunderstood Verizon VA's NRC model. Verizon VA's
12 response to AT&T/WCOM 6-21^{20/} included eleven individual responses that Verizon
13 received regarding work times for RCCC task #1, "Access WFA/C to begin coordination
14 process. (Screener)," for the Two Wire New Initial element. However, as Verizon VA
15 previously explained, in a number of instances in which activities were thought to take
16 the same average amount of time for a set of UNEs, Verizon pooled the survey responses
17 for that set and calculated one overall average time that was applied to all the UNEs in
18 the set.^{21/} This pooling approach increased the sample sizes for the pooled activities and
19 generally increased the precision of the results. Thus, the eleven survey responses for the
20 Two Wire New Initial element constituted fewer than 10% of the available responses

^{20/} See Response to AT&T/WorldCom Request 6-21. This response, and all other Verizon VA responses to AT&T/WorldCom discovery requests cited herein, are appended at Attachment B.

^{21/} See Response to AT&T/WorldCom Request 6-32.

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1 regarding RCCC task #1. As exhibited in Verizon VA's response to AT&T/WCOM 6-
2 31,^{22/} Verizon pooled a total of 138 survey responses to compute the average time
3 estimate for that task for *all* UNEs in the set. In response to AT&T/WorldCom Request
4 6-32,^{23/} Verizon VA provided a file that demonstrated its pooling approach and identified
5 the specific work activities and UNEs for which time estimates were pooled.
6

7 Pooling also explains several of the other purported inconsistencies to which
8 AT&T/WorldCom point. For example, AT&T/WorldCom assert that "[t]he means and
9 medians of survey responses provided in Verizon VA's Response to AT&T/WCOM 6-31
10 do not match the means and medians of the individual responses in Verizon VA's
11 Response to AT&T/WCOM 6-21, nor do the data that Verizon provided in response to
12 AT&T/WCOM 6-21 match Verizon's assumptions for its non-recurring cost model."^{24/}
13 Again, however, this alleged discrepancy arises because AT&T/WorldCom ignore the
14 pooling information provided by Verizon VA in response to AT&T/WCOM 6-32. As a
15 result, their calculations are flawed. The means and medians calculated by
16 AT&T/WorldCom using the individual survey responses provided in response to
17 AT&T/WCOM 6-21 do not take into account the pooling, while the means and medians
18 for Verizon VA's response to AT&T/WCOM 6-31 do account for the pooling. Similarly,
19 AT&T/WorldCom's omission of the pooling aspects of Verizon's study accounts for
20 their invalid charge that in response to AT&T/WCOM 6-31, Verizon listed the median of

^{22/} See Attachment B.

^{23/} See *id.*

^{24/} AT&T/WorldCom NRC Rebuttal Panel at 75.

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1 survey estimates for the task “Access WFA/C to begin coordination process. (Screeners),”
2 as 2 minutes, but that this result is inconsistent with the data produced in response to
3 AT&T/WCOM 6-21.^{25/} The 2-minute median listed in response to AT&T/WCOM 6-31
4 represents the median time needed for that task across all UNEs.

5
6 Once AT&T/WorldCom’s misunderstandings and omissions are accounted for, it
7 is hardly surprising that the means and medians reported in Verizon VA’s response to
8 AT&T/WCOM 6-31, which accounted for 138 data points, are different from the means
9 and medians of the eleven data points reported in response to AT&T/WCOM 6-21. To
10 take a simple example, a set of survey responses including three time estimates of one
11 minute, three minutes, and eight minutes will have a mean of four minutes and a median
12 of three minutes. If two more data points are added, one minute and two minutes, the
13 mean will now equal three minutes, and the median will equal two minutes.

14
15 Once again, Verizon VA’s pooling methodology increases the sample size and
16 renders its time estimate more reliable and precise; this reliability and precision starkly
17 distinguishes Verizon VA’s estimates from the hypothetical musings of a room full of
18 AT&T/WorldCom “experts.”
19

^{25/} *Id.* at 81 n. 57.

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1 **Q. AT&T/WorldCom criticize what they suggest are unreasonable variances between**
2 **the minimum and maximum times reported for several tasks, and the difference**
3 **between the mean time and the median time reported for these tasks. What is**
4 **Verizon VA's response? [AT&T/WorldCom NRC Rebuttal Panel at 78-79.]**

5 **A. Before addressing each individual example, it is important to recognize that the survey**
6 **responses went through several layers of review to ensure their reliability. After the**
7 **survey responses were initially received, they were reviewed, individually, by cost**
8 **analysts. When individual survey responses seemed ambiguous or otherwise**
9 **questionable, Verizon cost analysts went back to the relevant organizations to confirm**
10 **that the respondents understood the questions and that the responses they gave**
11 **represented their actual experiences.**

12
13 A Verizon statistician reviewed the distributions of work times in order to discern
14 any potentially troubling outliers. Ultimately, only two individual time estimates were
15 removed. The two omitted estimates were both “high” and would, if left in, have resulted
16 in average estimates times in excess of those ultimately used in the model. Verizon did
17 not delete any “seemingly low” survey responses. Since Verizon cost analysts had
18 already verified that the survey responses were accurate reflections of respondents’
19 experiences, it is highly likely that any “outliers” simply represented the outer bounds of
20 employees’ actual experiences, rather than any misunderstanding on their part.
21 Removing data points simply because they look “too high” or “too low” introduces a high
22 degree of subjectivity into the analysis and runs the risk of transforming a statistical

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1 procedure designed to reveal unbiased and accurate answers into a tool that merely
2 confirms the analyst's initial beliefs.

3
4 Verizon also hired NERA to calculate average work times and the statistical
5 precision of Verizon VA's non-recurring cost estimates. NERA used the individual
6 responses from the non-recurring work time surveys that were determined to be
7 independent to calculate the average times and variances for the non-recurring work
8 activities. Verizon subject matter experts ("SMEs") reviewed the average times for
9 reasonableness. The SMEs determined that the average times were reasonable and
10 consistent with their knowledge and experience. Based on these average work times and
11 other inputs from the non-recurring cost model, NERA calculated 95% precision levels
12 for Verizon VA's proposed non-recurring costs.

13
14 NERA's results^{26/} show that Verizon VA's average work time estimates are
15 sufficiently precise for the company to use in developing non-recurring costs for
16 unbundled network elements. In particular, for the elements that AT&T/WorldCom
17 single out on page 79 of their rebuttal testimony, the average UNE rates are estimated
18 quite precisely. NERA calculated precision levels for the "Two Wire New Initial," "Two
19 Wire Hotcut Initial," and "Engineering Work Order" UNEs of 2.9%, 3.1% and 12.2%
20 respectively, which means that sampling variation has a very small effect on the
21 measured UNE rate. For example, for the "Two Wire Hotcut Initial" UNE, the sampling
22 variation about which AT&T/WorldCom complain implies that there is a 95% probability

²⁶ See VZ-VA Panel Direct, Attachment E.

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1 that the true population UNE rate lies within \$8.20 of the \$264.64 figure reported.

2 AT&T/WorldCom's intuitions about survey responses that *seem* too high or sample sizes
3 that *seem* too small cannot substitute for universally established statistical practices
4 designed to evaluate surveys for precisely these flaws.

5
6 **Q. What accounts for the variances in time identified in the panel rebuttal testimony?**

7 **[AT&T/WorldCom NRC Rebuttal Panel at 79-80, 84.]**

8 A. The tasks singled out by AT&T/WorldCom are open-ended activities for which one
9 should not be surprised to observe even significant variation in the respondents'
10 estimates. For a variety of reasons, workers will always experience different average
11 times for the same task. First, the instances of the performance of a specific work activity
12 are not homogeneous. There exist order-specific factors that cause variations in the time
13 it takes to perform the activity. Since different workers handle different sets of orders,
14 their average experiences and average work times will differ. For example, the task
15 "Notify CLEC of line/circuit completion" for the Two Wire Initial UNE requires the
16 RCCC Coordinator to call the CLEC with service order completion information to report
17 demarcation point location and obtain a completion or acceptance serial number from the
18 CLEC. Often, Verizon VA will create a Microsoft Excel spreadsheet and email the
19 completion and demarcation information to the CLEC. Some CLECs perform testing
20 while the RCCC Coordinator is on the line. This testing can take the form of a phone call
21 to the end user, or the line can be tested by the CLEC's test system. Depending on the
22 number of lines being turned up and the CLEC testing protocols, the length of time that it

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1 takes to perform this task can vary widely. It is thus not surprising that it could take one
2 minute in some cases and 120 in others.

3
4 As another example, the task "Check for and obtain any necessary permits" for
5 the Engineering Work Order UNE includes two steps. The first step involves
6 determining whether a permit is required to do the work. In some cases, no permit will
7 be required at all and the task would stop there. In others, however, the worker would
8 need to proceed to the second step of obtaining the permit. This step can be very
9 complex and time consuming when it has to be performed. The permit application may
10 require submission of detailed information, and in some cases even a sketch. Moreover,
11 the process is rendered even more time consuming by the fact that the permit-granting
12 authority may be the state government, the federal government, or another governmental
13 authority altogether.

14
15 Similarly, the variation in the time estimates reported by the RCCC Coordinators
16 to perform the "Restorals & Service Interruptions: Handle all Restoral requests" tasks for
17 the Two Wire Hotcut Initial UNE and the Two Wire Hotcut Additional UNE is a direct
18 result of the complexity of the Hotcut process. The Coordinator has to be notified of the
19 restoral request from the CLEC or Verizon RCMC organization. Then, the Coordinator
20 must determine the source of the problem (*e.g.*, frame, RCMAC, the CLEC itself, etc.).
21 Sometimes this task can be accomplished with just a few phone calls. Other times,
22 restorals can require several hours to sort out and resolve the problem, and new orders

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1 may need be issued. Moreover, the more lines involved in the Hotcut, the greater the
2 variation in the amount of time needed to restore service increases.

3
4 In some cases, workers consistently handle different “types” of orders. Efficiency
5 considerations often require that more experienced workers handle mostly complex
6 orders while less experienced workers handle mostly simple orders. In other cases,
7 workers perform the activities in consistently different environments. This
8 “specialization” in the assignment and allocation of work can cause significant variations
9 in average experiences and average times among workers. For example, some of the
10 variation among workers in average time estimates is attributable to the fact that they
11 work in different geographic environments (*e.g.*, urban vs. rural). For example, the
12 CLECs criticize the variance in the responses for the load coil removal task “set up the
13 inside of the manhole for work to be done.”^{27/} In fact, however, the time that it takes to
14 perform this task will vary dramatically depending upon the geography. In particular, the
15 need to pump water from the manhole is a variable that can add a significant amount of
16 time to the process. Certain geographic areas rarely require manholes to be pumped,
17 while others may be located beneath the water table and may therefore require pumping
18 before entry and set up on every occasion. Thus, a worker who was located in a region
19 that was in whole or in part below the water table would very likely encounter a higher
20 average time for this task than a worker in a region well-above sea level. Similarly, the
21 size of the manhole (in cubic footage of volume) can make a substantial difference in the
22 time required to purge and ventilate the manhole with fresh air to create a safe working

^{27/} AT&T/WorldCom NRC Panel Rebuttal at 84.

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1 environment. The simple location of a manhole, too, will have a significant impact on
2 the necessary work area protection preparations.

3
4 **Q. Are AT&T/WorldCom justified in arguing that Verizon should have used the**
5 **sample median, rather than the sample average, time as the work-time input in its**
6 **study? [AT&T/WorldCom NRC Rebuttal Panel at 80-82.]**

7 A. No. The argument that Verizon VA should have used median times rather than average
8 (mean) times for its estimates is unavailing. The use of the sample mean ensures that
9 Verizon VA neither systematically under-recovers nor systematically over-recovers the
10 costs it incurs in provisioning a CLEC order. The sample median does not have this
11 property unless, by chance, the actual distribution of work times happens to be
12 symmetric. The sample mean has this desirable property whether or not the distribution
13 of times is symmetric.^{28/}

14
15 A simple example will demonstrate the inherent problem in using median times.
16 Suppose that the survey responses showed that three employees take, respectively, one
17 minute, two minutes, and six minutes to complete a given task. If Verizon VA used the
18 mean time, three minutes, it would recover for nine minutes' worth of work time to
19 perform that task for three UNEs — that is, the actual amount of time that Verizon VA's
20 workers estimate it takes on average to perform the tasks. If Verizon VA used the
21 median time, 2 minutes, it would only collect for six minutes' worth of time, even though
22 it tends to take nine minutes to perform the task three times. This would be unfair and

^{28/} See M.G. Bulmer, *Principles of Statistics* (Dover 1979).

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1 would, over time, severely hamper Verizon VA's capacity to provide service to CLECs
2 and end users. This example mirrors almost precisely the actual scenario described at
3 page 81, note 57 of the AT&T/WorldCom rebuttal: There, AT&T/WorldCom note that
4 with respect to the "Access WFA/C to begin coordination process. (Screener)" task, "the
5 minimum estimate was one minute and the maximum estimate was ten minutes," and the
6 median estimate was one minute. If Verizon VA assumed that this task took only one
7 minute in all instances, it would never recover for the more complicated cases in which
8 the task took ten minutes.

9
10 Finally, it is important to note that in many cases, the mean is actually *less* than
11 the median time. For example, if the time estimates received were one minute, nine
12 minutes, and eleven minutes, the mean time would be seven minutes, while the median
13 would be nine minutes. If Verizon VA recovered for the median time — nine minutes —
14 each time it performed the task, as AT&T/WorldCom suggest, it would collect for 27
15 minutes' worth of time for performing the task three times, even though it only expected
16 to use twenty-one minutes' worth of time. This point is significant, as there are over one
17 hundred Work Activity/UNE/Type combinations used in the Verizon VA model for
18 which the median exceeds the mean.

19
20 **Q. Does the panel have a correction to the average work time estimates that were used**
21 **in the Verizon VA NRCM?**

22 **A.** Yes. In the course of preparing this testimony, it came to Verizon VA's attention that
23 due to an administrative error, certain UNE costs filed on July 2 had inadvertently been

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1 based on incorrect average work times that differ very slightly from the actual average
2 work times that should have been used. Verizon VA previously produced the correct
3 average times to the other parties in this proceeding in response to AT&T/WCOM 6-31,
4 which is appended to this testimony as part of Attachment B, on August 22, 2001.

5
6 **Q. What effect did this error have on the UNE costs derived by the NRCM?**

7 A. The difference is trivial — literally a matter of a few pennies. Attachment C to this
8 testimony compares the cost filed for each UNE and the cost that would result from use
9 of the corrected mean times. In no case was the cost reported more than 0.172% greater
10 than the actual cost. That is, in the worst case, the actual cost was less than one fifth of
11 one percent lower than the reported cost. In most cases, the difference between the
12 reported cost and the actual cost was less than 0.02% — that is, less than one fiftieth of
13 one percent. Attachment D to this testimony depicts the non-recurring costs that result
14 from use of the corrected figures, and is meant to replace the Exhibit, Part H, Section H,
15 of the cost study submitted by Verizon VA on July 2, 2001.

16
17 **Q. Do you agree with AT&T/WorldCom that Verizon should have discarded all survey**
18 **responses from one respondent who estimated that it took 960 minutes each to**
19 **complete the “Designs work requirement,” “Draws schematic of work required**
20 **including outside plan locations,” and “Completes the work print” tasks?**

21 **[AT&T/WorldCom NRC Rebuttal Panel at 82.]**

22 A. These figures were not removed from the Verizon survey, because there is no reason to
23 believe that the estimates are erroneous. Indeed, for the first task, Verizon also received

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1 four estimates of 240 minutes, one estimate of 360 minutes, three estimates of 480
2 minutes, and one estimate of 540 minutes. For the second task, Verizon received five
3 estimates of 180 minutes and individual estimates of 200, 240, 360, and 480 minutes.
4 For the third task mentioned by AT&T/WorldCom, Verizon received five estimates of
5 180 minutes, three estimates of 240 minutes, and individual estimates of 300 and 330
6 minutes. Thus, the respondent singled out is not particularly out of line with other
7 respondents, and his or her responses probably indicate that he or she tends to work on
8 particularly complicated orders. His or her experience should not lightly be discarded.

9
10 In any event, even if this respondent's answers were removed, in all cases except
11 for one, UNE costs would be affected, if at all, by less than 1%.

12
13 **Q. AT&T/WorldCom complain that “Verizon did nothing to educate survey**
14 **respondents concerning the nature of forward-looking cost studies,” and that the**
15 **estimates received therefore include an “inherent . . . upward bias.”**
16 **[AT&T/WorldCom NRC Rebuttal Panel at 78.] Please respond.**

17 **A.** As explained above, it was not the survey respondents' responsibility to produce
18 “forward-looking” costs, and, indeed, most survey respondents were not equipped to do
19 so. The respondents were “educate[d]” with regard to the importance of supplying
20 accurate information detailing the amount of time a specific task takes in the *current*
21 work environment. AT&T/WorldCom have provided no viable reason — because no
22 viable reason exists — why survey respondents who were asked to estimate the time it
23 actually takes today to perform a given task would produce results displaying an

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1 “inherent . . . upward bias.” There is every reason to believe that survey respondents
2 provided responses that accurately depicted their experiences, and that the responses
3 were, collectively, representative of the resources Verizon VA must devote to each task.
4 These figures were then adjusted to reflect a forward-looking network, using a Forward-
5 Looking Adjustment Factor designed by those who have knowledge regarding potential
6 future advances.

7
8 **Q. What about AT&T/WorldCom’s suggestion that Verizon’s sample size was not**
9 **large enough? [AT&T/WorldCom NRC Rebuttal Panel at 85.]**

10 A. First, Verizon sent surveys to all relevant personnel. The company did not set out to
11 selectively survey only particular individuals. Moreover, the Verizon cost analysts
12 determined that there was no systematic relationship between the individuals returning
13 the survey forms and the types of orders they handled or the environments in which they
14 worked. Second, as described above, Verizon commissioned NERA to calculate 95%
15 precision levels for the non-recurring costs. NERA calculated the precision level for each
16 element, which automatically takes into account not only the impact of the actual
17 variation in the work times reported by the survey respondents, but also sample sizes.
18 The fact that the precision levels were small indicates that the sample sizes used by
19 Verizon were sufficient to measure precisely the average work times and associated UNE
20 costs and rates.

21
22 It is particularly ironic for AT&T/WorldCom to criticize the sample size
23 supporting Verizon VA’s NRCM, when their entire “sample” consisted of a small

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handful of purported experts who — despite their lack of real-world experience provisioning the UNEs at issue — together devised a single time estimate for each category. Verizon VA’s approach is sensible, methodical, and reliable, and should be adopted in this proceeding.

Q. Should Verizon VA have counted “N/A” or blank survey results as “zero” responses, rather than excluding those responses from its calculations, as AT&T/WorldCom argue? [AT&T/WorldCom NRC Rebuttal Panel at 87-89.]

A. No. This suggestion reflects a fundamental misunderstanding of the Verizon VA model. Verizon first assembled data regarding the amount of time that a task takes *when it needs to be performed*. Just as the survey respondents are not well positioned to know how future technologies will impact the incidence of a particular task, so too are they likely unsuited to knowing how frequently the task is performed, because workers simply do not see the orders that do not require manual intervention.

Only when Verizon VA had derived the amount of time it takes to perform a task when it needs to be performed did it then adjust that figure to account for cases in which it will not be required to be performed at all. No activity, no matter how productive the worker, can be performed infinitely quickly. An “N/A” response merely indicates that the particular survey respondent has not performed that particular work activity. It is inappropriate for such an individual to provide a time estimate for a work activity that he or she has no experience performing. The Verizon survey instruction document explicitly instructed the survey respondents to “enter N/A for Not Applicable” if the

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1 respondent did not perform the work activity. In such a case, the “N/A” response is not
2 relevant to the object of the work time survey, which, again, was to determine how long
3 the task takes when it must be performed. If Verizon VA counted “N/A” responses as
4 estimates of zero time, the average work times used in its model would be seriously
5 understated.^{29/}

6
7 **B. Verizon VA’s Survey Methodology Ensured That Time Estimates Reflected**
8 **the Time It Takes Actual Workers to Perform Tasks in a Real-World**
9 **Environment.**

10
11 **Q. Is it the case that by dividing tasks into small steps, Verizon’s survey was “likely to**
12 **prompt exaggerated time estimates”? [AT&T/WorldCom NRC Rebuttal Panel at**
13 **86.]**

14 A. No. First, AT&T/WorldCom have produced no empirical reason why survey responses
15 are likely to express different estimates as a result of the manner in which the tasks are
16 broken down. Survey respondents were asked to estimate the amount of time it actually

^{29/} Again, a simple examples illustrates the patent flaw in AT&T/WorldCom’s criticism. Suppose a particular activity takes 12 minutes to perform and needs to be done for one of every four orders for a particular element. Suppose further that there were three respondents to the survey, two of whom indicated that the time needed for the task was 10 and 14 minutes, respectively, and one of whom simply wrote “N/A” because he had never had to perform the task. Under Verizon VA’s methodology, the 10 and 14 minutes would be averaged to produce an average work time of 12 minutes and then a Typical Occurrence Factor of 25% would be applied to take account of the frequency with which the task is performed. Thus, each element of that type ordered would include the cost for 3 minutes (25% of 12 minutes) in connection with this task and Verizon would appropriately recover for a total of 12 minutes of time for every four elements ordered. Under the AT&T/WorldCom proposal, however, Verizon would have counted the N/A response as “0,” and the “average time” would be 8 minutes (10 + 14 + 0 divided by 3). Then, after applying the 25% Typical Occurrence Factor, Verizon would attribute only 2 minutes to each order for this element. As a result, it would recover for only 8 minutes of time for every four elements, even though it spent an average of 12 minutes.

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1 took to perform a given task, and AT&T/WorldCom have offered no basis for believing
2 that they did anything other than that.^{30/}

3
4 Second, AT&T/WorldCom's complaint is disingenuous, because elsewhere, they
5 have criticized Verizon VA's task descriptions for being *too* generic and inclusive. In
6 New York, for example, AT&T "contend[ed] that [Verizon's] presentation . . .
7 consist[ed] of cursory descriptions of various functions, described at a level of generality
8 that preclude[d] adequate understanding."^{31/} In response to complaints such as this,
9 Verizon VA has attempted to break down its tasks to a level of specificity that would
10 facilitate analysis and render time estimates more precise.

11
12 AT&T/WorldCom cannot have it both ways, criticizing Verizon for being too
13 vague in one breath and for being too specific in the next. AT&T/WorldCom's
14 inconsistent response to the Verizon survey highlights the importance of balancing
15 specificity with flexibility, and confirms that Verizon has struck the appropriate balance
16 in defining activities.

^{30/} AT&T/WorldCom cite an article from the cognitive psychology literature that they claim substantiates their critique, but even cursory review of the article demonstrates that it addresses an entirely different point. AT&T/WorldCom assert that by breaking down tasks, Verizon VA has introduced a risk that survey respondents will overstate the amount of time it takes to perform each task. Yet the cited article addresses subjective perceptions of *probabilities*. That is, the article examined whether individuals would ascribe a higher probability to an event's occurrence if that event were "unpacked" into various component parts than if it were presented as a whole. See A. Tversky & D. J. Koehler, *Support theory: A nonextensional representation of subjective probability*, 101 *Psychological Review* 547-567 (1994). AT&T/WorldCom offer no reason why this phenomenon would apply to the task of identifying the times needed to perform discrete tasks.

^{31/} Recommended Decision on Phase 2 Issues, State of New York Public Service Commission, Case Nos. 95-C-0657 et al. (Oct. 2, 1997), at 83.

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1

2 **Q. Is it true, as AT&T/WorldCom suggest, that technicians will ordinarily do all of one**
3 **type of task at once, then all of another type of task, and that this approach will**
4 **result in time savings that are not accounted for in Verizon VA's model?**

5 **[AT&T/WorldCom NRC Rebuttal Panel at 86.]**

6 A. This may be true, but is accounted for in the model. AT&T/WorldCom have assumed
7 that the Verizon VA survey respondents did not take such "batching" into account when
8 they answered survey questions, but they have provided no support whatsoever for this
9 assumption. In fact, Verizon VA's time estimate survey generally sought the amount of
10 time a task takes for the "initial" element and then for "additional" elements. This
11 breakdown enabled Verizon workers, who were instructed to submit the amount of time it
12 actually takes them to perform a given task, to account for any efficiencies captured by
13 "batching."

14

15 **Q. Please respond to AT&T/WorldCom's charge that Typical Occurrence Factors**
16 **often were not "gathered from the same people that answered the task time**
17 **surveys." [AT&T/WorldCom NRC Rebuttal Panel at 89-90.]**

18 A. This is true, but is not cause for concern. As explained above, workers performing
19 manual processing have no way to know how many orders "flow through" a system since
20 by definition they only see the orders that do *not* flow through. Thus, they have no basis
21 on which to ascertain the proportion of total orders for which their particular task must be
22 performed. They *are* expert in how long it takes to perform their task when that task is
23 required. Accordingly, these workers were asked to supply work time estimates, while

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1 other individuals, who have a global view of the proportion of orders for which a given
2 task is necessary, developed the Typical Occurrence Factors.

3
4 **Q. Do you have any final remarks on this topic?**

5 A. Yes. As described above, AT&T/WorldCom's various criticisms all fail upon inspection.
6 But it is essential that we not overlook one central point: Verizon VA developed a
7 comprehensive approach to estimating work times. It surveyed employees who actually
8 perform the work at issue, adjusted their responses to account for current and planned
9 mechanization, and presented average work times that are based on the workers' actual
10 experience. AT&T/WorldCom, in contrast, have assembled a small collection of
11 "experts" with limited — if any — experience in the provisioning of UNEs and conjured
12 a single hypothetical time estimate with no apparent empirical or statistical basis. The
13 methodical assessment performed by Verizon VA is clearly more reliable and should be
14 accepted.

15 16 **IV. ORDERING (JDPL Issues II-1 to II-1-d; II-2 to II-2-d; IV-36)**

17 **Q. AT&T/WorldCom challenge the level of fallout in Verizon VA's NRCM for the**
18 **ordering stage. What is your general response?**

19 A. AT&T/WorldCom's model assumes that Verizon VA will engage in absolutely *no*
20 manual processing during the ordering stage.^{32/} That is clearly incorrect on two different
21 levels:

22

^{32/} See, e.g., Walsh Direct at 33 (AT&T model "does not consider any fallout in the service-ordering phase of CLEC request processing").

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1 (1) Even if an order is designed to flow through, in the real world a certain
2 percentage will “fall out” of the system. As AT&T/WorldCom concede, “[e]lectronic
3 order processing does not necessarily eliminate all manual intervention.”^{33/} Indeed, they
4 further acknowledge that such fallout can result from CLEC errors.^{34/} Yet, they
5 inexplicably assume away all such fallout “based on parity with similar retail
6 processing.”^{35/} But even assuming costs associated with fallout in UNE ordering could
7 be legitimately ignored to provide such parity, the fact is that retail order processing
8 incurs fallout, just like any other electronic ordering system in the real world. Verizon
9 VA has accounted for all cases in which manual processing will be required, both now
10 and on a forward-looking basis, through application of its Typical Occurrence Factor and
11 Forward-Looking Adjustment Factor. AT&T/WorldCom have — without a shred of
12 justification or analysis — assumed away such manual involvement. Indeed,
13 AT&T/WorldCom can point to *no* system or carrier that surpasses the performance levels
14 assumed by Verizon VA’s NRCM, let alone one that supports the 0% manual handling
15 they fantasize.

16
17 (2) While all parties agree that fallout generally is defined as the failure of an
18 order that is *designed to flow through* OSS to do so properly, Verizon VA strongly
19 disagrees with AT&T/WorldCom’s assumption that 100% of orders and products are, or
20 should be, designed to flow through. This is simply not true. It would be neither cost-

^{33/} AT&T/WorldCom NRC Rebuttal Panel at 32.

^{34/} *Id.* at 33.

^{35/} *Id.*

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1 efficient nor, in some cases, practical, given currently available technologies, for Verizon
2 VA to mechanize the handling of every order type, irrespective of that order's
3 complexity. While Verizon VA has mechanized many ordering tasks for many elements,
4 and takes account of further potential efficient mechanization through its forward-looking
5 adjustment factors, the most economical (and in some cases the only) way to deal with
6 certain types of complex and/or low-volume orders is through manual handling. The
7 orders for which manual handling is appropriate include, for example, requests for
8 multiple loops or complex services such as Integrated Services Digital Network
9 ("ISDN"), the migration of partial end-user accounts, and other special services.

10
11 Verizon VA's NRCM therefore addresses not only the manual activity associated
12 with fallout due to *error conditions* but also the manual handling needed for requests to
13 provision real world applications that were never meant to flow through the system, or
14 that are not expected to flow through the systems in the future. The NRCM *does* "reflect
15 the greatest feasible electronic exchange of information between" Verizon VA and the
16 CLECs, as AT&T/WorldCom desire,^{36/} but Verizon VA — unlike AT&T/WorldCom —
17 recognizes that "feasibility" is a matter not simply of technical possibility, but also of
18 efficient design; where automation would be more expensive than manual processing,
19 electronic exchange of information may be technically achievable, but it still is *not* a
20 "feasible" approach to ordering.

^{36/} AT&T/WorldCom NRC Rebuttal Panel at 30.

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Verizon VA remains the only party in this proceeding to have set forth any empirical foundation supporting its estimates of the work likely to be required in a forward-looking environment. Unlike AT&T/WorldCom's, Verizon VA's fallout rates are based on empirical experience, adjusted to account for achievable efficiencies using currently available technologies, and account for the fact that different types of orders are likely to require differing degrees of manual processing by assigning a distinct Typical Occurrence Factor and Forward-Looking Adjustment Factor to each potential step in the ordering process. The Commission should adopt Verizon VA's proposed costs.

Q. Why is the fact that the parties have different views regarding the definition of “fallout” significant?

A. The distinction is significant because AT&T/WorldCom have tended to cite seemingly high incidences of Verizon VA “fallout,” suggesting that an unreasonable proportion of orders intended to flow through are failing to do so, when in fact these numbers represent cases in which automation is not planned because it would be inefficient.

For example, the AT&T/WorldCom panel argues that “in Verizon’s model, almost three out of every ten orders (for a two-wire loop) will have errors on them which Verizon claims that it will elect to correct and process manually.”^{37/} But the reason that three of ten orders need to be processed manually is not that they all contain “errors.” Rather, many orders are, and will be, processed manually *by design*, because mechanized

^{37/} AT&T/WorldCom NRC Rebuttal Panel at 54.

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1 processing would be uneconomical. These include — but are not limited too — orders
2 for more than five lines, which may require manual facilities checks, or intricate orders in
3 which a customer wishes to switch some, but not all, of his or her lines from Verizon VA
4 to the CLEC. To lump these cases in with cases in which an order was meant to traverse
5 the system but failed to do so is analytically unsound, but is a natural consequence of
6 AT&T/WorldCom’s vision of “fallout.”
7

8 **Q. Are AT&T/WorldCom correct in suggesting that Verizon VA has assessed a non-**
9 **recurring charge even when errors in the ordering process are attributable to**
10 **“errors in content or format”? [AT&T/WorldCom NRC Rebuttal Panel at 33.]**

11 A. No. The AT&T/WorldCom NRC Rebuttal Panel’s assumption that Verizon VA’s
12 NRCM identifies a non-recurring cost for manual processing whenever a CLEC order
13 contains an “error in content or format” is not correct. Before being submitted to the
14 OSS that governs ordering, a CLEC request first passes through a “gateway” OSS. That
15 OSS will reject entries that contain most formatting errors — for example, a numeric
16 entry where an alphabetical entry is required, or an entry containing improper
17 punctuation. But the gateway OSS will *not* catch “logical errors” — those that are
18 formatted and punctuated as expected by the gateway OSS but that contain information
19 incompatible with downstream ordering and/or provisioning systems. Verizon VA’s
20 systems have now been improved such that in some cases, it can generate mechanized
21 queries even when an error has gotten past the gateway OSS. In those cases, the CLEC
22 also will receive an automated response. In either of these situations — where an error is

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1 discerned by the gateway OSS or later in the process but still without human intervention
2 — non-recurring rates will *not* reflect a charge for manual correction.

3
4 Sometimes, however, problems, by their nature, will *not* be immediately obvious
5 to the OSS and will *not* generate subsequent mechanized queries, but rather can only be
6 detected well after the order is processed. This may be the case when the CLEC enters
7 LSRs containing “logical errors” — errors that meet the character/syntax/format
8 requirements of the front-end OSS. Information containing such errors typically is
9 recognized to be wrong or conflicting only later on, often during the provisioning
10 process. Logical errors might include duplicate assignment of CLEC equipment, entry of
11 a wrong identifier for the CLEC’s collocation, or conflicting end-user customer
12 information. There is no way for Verizon VA’s OSS to recognize these errors, and they
13 therefore will require some kind of manual intervention. Such problems should become
14 relatively infrequent as all participants in the process become more experienced, and the
15 study, through the application of Forward-Looking Adjustment Factors, reflects this
16 assumption in its forward-looking work times. But when such errors do occur, some
17 manual response is required.

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1 **Q. AT&T/WorldCom describe a variety of circumstances in which, they assert, the**
2 **Verizon VA OSS should — but does not — simply re-direct the order back to the**
3 **CLEC. Are their criticisms warranted? [AT&T/WorldCom NRC Rebuttal Panel at**
4 **35-37.]**

5 **A. No, because in almost all cases AT&T/WorldCom identify, Verizon VA’s systems**
6 operate as AT&T/WorldCom propose. And in those cases where the OSS does not do so,
7 that is because the AT&T/WorldCom proposal is not feasible and/or efficient. Below, we
8 respond to each of the hypothetical scenarios:

9 1. An invalid LSR field has been populated.

10 In this situation, Verizon VA’s OSS does exactly what AT&T/WorldCom
11 propose.
12
13

14 2. An LSR field contains invalid data.

15
16 With respect to errors in syntax, response format, and punctuation, Verizon VA’s
17 OSS does exactly what AT&T/WorldCom propose. As discussed above, certain
18 “logical errors” are not recognized until the “properly formatted erroneous
19 information” is assessed later in the provisioning process.
20

21 3. The address populated on the LSR does not match the address in
22 “LiveWire.”
23

24 In this situation, Verizon VA’s OSS does exactly what AT&T/WorldCom
25 propose.
26

27 4. A required field has not been populated.

28
29 In this situation, Verizon VA’s OSS does exactly what AT&T/WorldCom
30 propose.
31

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1 5. The FEATURE Field contains invalid data.
2

3 In this situation, Verizon VA's OSS does exactly what AT&T/WorldCom
4 propose.
5

6 6. A required form has not been submitted.
7

8 In this situation, Verizon VA's OSS does exactly what AT&T/WorldCom
9 propose.
10

11 7. A supplemental service order has been sent on an LSR when the service
12 order has already been completed.
13

14 In this situation, Verizon VA's OSS does exactly what AT&T/WorldCom
15 propose.
16

17 8. The LOOP is not qualified as requested (*e.g.*, loop length too long, loaded
18 facilities, no copper facilities available, spectrum incompatibility issues).
19

20 Verizon VA relies on the CLEC to use Verizon VA's mechanized loop
21 qualification database to prequalify a service address for DSL. The CLEC must
22 then indicate, on the LSR, that it has qualified that address for DSL service.
23 Verizon VA's OSS does not validate appropriate loop characteristics until the
24 actual assignment is made as a part of the provisioning process. If, during the
25 assignment process, Verizon is unable to assign a qualified loop despite the
26 CLEC's prior certification that it would be able to do so, that order will fall out
27 for manual handling.
28

29 9. The retail service or line cannot be migrated (*e.g.*, BOSS/CRISS account
30 is not live).
31

32 In this situation, Verizon VA's OSS does exactly what AT&T/WorldCom
33 propose.
34

35 10. A problem with the telephone number provided (*e.g.*, incorrect Area Code,
36 incorrect Wire Center, no account found, no match to end-user name, no
37 match to end user address, status is non working, status is disconnected).
38

39 As noted above, with respect to errors in syntax, response format, and
40 punctuation, Verizon VA's OSS does exactly what AT&T/WorldCom propose.

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1 “Logical errors,” for the reasons mentioned above, will not be discovered until the
2 “assignment” phase of the provisioning process.
3

4 11. Due date is in jeopardy due to facilities problems (*e.g.*, no spare facilities,
5 no copper facilities available).
6

7 Verizon VA does not assess the availability of facilities until the assignment step
8 in the provisioning process. Therefore, the order will not immediately be returned
9 to the CLEC but rather will fall out for manual processing in the MLAC in an
10 attempt to find facilities to satisfy the order. This process, while it results in the
11 manual handling of some orders, ultimately benefits the CLEC because, in many
12 cases, Verizon VA’s MLAC and Engineering personnel are able to find creative
13 ways that facilities can be made available to fulfill the CLEC order.
14

15 12. Duplicate Purchase Order Number (*i.e.*, a new PON has been received and
16 the identical work being requested on the new PON is pending or
17 completed by another PON).
18

19 In this situation, Verizon VA’s OSS does exactly what AT&T/WorldCom
20 propose.
21

22 13. A pending order exists on the same account in which the LSR is
23 requesting activity.
24

25 In this situation, Verizon VA’s OSS does exactly what AT&T/WorldCom
26 propose.
27
28

29 **Q. Please assess AT&T/WorldCom’s suggestion that “[t]he CLEC should be assessed a**
30 **manual non-recurring charge only if Verizon can demonstrate that the manual**
31 **process is needed each and every time a particular condition is encountered and**
32 **exactly why Verizon is unable to process the request automatically.”**

33 **[AT&T/WorldCom NRC Rebuttal Panel at 47.]**

34 **A.** The suggestion that Verizon VA “charge” CLECs a manual processing NRC on a per-
35 occurrence basis is wholly unrealistic. First, installation of an OSS with the capability to
36 recognize individual, CLEC-specific, order-specific incidents of fallout and to tally and

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1 bill an NRC for each such incident would result in monumental and unnecessary
2 complexity in the Ordering OSS and Billing OSS, and thus would, in turn, increase the
3 total charges to which all CLECs — and end users — are subjected. Further, the billing
4 of such charges would generate individual and generic controversies between the parties
5 regarding the application of specific fallout-related fees. Indeed, AT&T/WorldCom hint
6 at such controversies in their testimony by proposing that Verizon VA bear a burden of
7 proof in “each and every” instance.^{38/} We do not believe that it is in the interest of the
8 industry in general, the CLECs, or Verizon VA to build such complexities — and such
9 staggering administrative costs — into the business process. Thus, in most cases,
10 Verizon VA appropriately has chosen to spread manual processing costs over all orders,
11 through application of the Typical Occurrence Factor.^{39/}

^{38/} AT&T/WorldCom NRC Rebuttal Panel at 47.

^{39/} We note that Verizon VA’s model *does* track and bill some non-recurring charges only when a particular CLEC order causes that charge to be incurred *when it is feasible and efficient to do so*. For example, Verizon VA will charge a non-recurring charge for a field dispatch associated with provisioning a loop only if and when such a field dispatch is necessary. In this context, case-by-case billing is feasible because Verizon VA’s service order systems allow field technicians to indicate when a dispatch does, in fact, occur.

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1 **Q.** AT&T/WorldCom argue that by collecting the cost attributable to processing a
2 single order requesting multiple elements through a non-recurring charge for the
3 initial request, Verizon VA forces a CLEC that places an order for one element “to
4 pay for the resolution of fallout that might occur as the result of multiple elements
5 being ordered in a single request.” [AT&T/WorldCom NRC Rebuttal Panel at 55-
6 57.] **How does Verizon VA respond?**

7 **A.** First, it is more efficient for Verizon VA to use a single UNE service order rate that does
8 not vary with the size of the order rather than for it to use multiple service order rates.
9 This approach thus cuts administrative costs for all parties. Second, use of a single rate is
10 the only way to prevent CLECs from gaming the ordering process to benefit from low
11 rates that would fail to compensate Verizon VA for its costs. For example, the service
12 order rate for an order of UNE 2-wire loops is an average rate that does not vary with the
13 size of the order. If service order rates for a single UNE loop order were lower than per-
14 loop rates for a multiple UNE loop order, this could create an incentive for CLECs to
15 avoid a higher service order charge by breaking a single order for many loops into
16 multiple individual orders. This result would introduce confusion, inefficiencies, and
17 possibly additional costs for all parties.

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1 **Q. Are AT&T/WorldCom correct in arguing that Verizon VA’s proposed charge for**
2 **manual processing by the TISOC^{40/} to determine whether a CLEC request can be**
3 **met is not valid under TELRIC, because in a TELRIC-compliant network, carriers**
4 **would not need to make such determinations? [AT&T/WorldCom NRC Rebuttal**
5 **Panel at 57.]**

6 **A. AT&T/WorldCom seem to misunderstand the TELRIC methodology. Under TELRIC,**
7 **UNE prices are expected to reflect all forward-looking costs. In any real-world**
8 **competitive market — forward-looking or not — consumers *do* pay for the costs of**
9 **maintaining and managing inventory. If prices did not account for those costs, the**
10 **supplier would not be recovering its full forward-looking costs. Thus, prices do account**
11 **for the costs of determining availability, even though the associated charge often is not**
12 **itemized and separately identified. Like any other vendor’s prices, Verizon VA’s UNE**
13 **prices incorporate the cost to determine whether a request can be met. And like any other**
14 **vendor, Verizon VA recovers for inventory-related costs through the prices charged for**
15 **the services whose availability must be confirmed.**

16
17 Nor could Verizon VA be expected simply to know, at all times, whether it could
18 or could not provide a given service. Just as an office-based business could not
19 practically keep perfect track of every pencil and stapler — and, in some cases, might not
20 even keep track of every computer — Verizon VA cannot practically maintain an always-
21 current record of every line, every cross-connect, and so forth. It is far more economical
22 — both for Verizon VA and, consequently, for the ordering CLEC — for Verizon VA to

^{40/} The TISOC is now called the “National Market Center,” or “NMC.” For the purposes of this testimony, however, we will continue to refer to it as the “TISOC.”

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1 perform certain checks only when a facility is requested. Verizon VA's approach,
2 therefore, actually has resulted in *lower* UNE prices. If AT&T/WorldCom believe
3 otherwise, that is only because their model ignores not only the cost for manual
4 processing to determine whether an order can be met, but also the alternative cost for
5 Verizon VA's maintenance of a constantly-updated database.

6
7 Finally, we emphasize that the charges about which AT&T/WorldCom complain
8 *have* been adjusted to reflect forward-looking assumptions, and are thus TELRIC-
9 compliant. That is, to the extent we are aware of any achievable technical efficiencies
10 using currently available technologies, those efficiencies have been taken into account
11 through application of the Forward-Looking Adjustment Factor.

12 13 **V. PROVISIONING GENERALLY (JDPL Issues II-1 to II-1-d; II-2 to II-2-d; IV-36)**

14 15 **A. Verizon VA's Treatment of Manual Handling in the Provisioning Process Is** 16 **Realistic, Forward-Looking, and Efficient.**

17
18 **Q. Please respond to the AT&T/WorldCom NRC Rebuttal Panel's assertion that the**
19 **OSS, and only the OSS, should assign network inventory and fulfill order requests.**
20 **[AT&T/WorldCom NRC Rebuttal Panel at 46-47.]**

21 A. We agree with the AT&T/WorldCom panel that generally "[i]t is the inherent function
22 and design of the OSS" to facilitate "the assignment of network inventory and the
23 fulfillment of the service order request,"^{41/} and Verizon VA's NRCM assumes that, in
24 most cases, assignment is handled electronically. However, AT&T/WorldCom blithely

^{41/} AT&T/WorldCom NRC Rebuttal Panel at 46.